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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Cyril Chevillard

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FINA TECHNOLOGY INC
PO BOX 674412
HOUSTON, TX 77267-4412

EXAMINER

WOLLSCHLAGER, JEFFREY MICHAEL

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/766,672	Applicant(s) CHEVILLARD ET AL.	
	Examiner JEFFREY WOLLSCHLAGER	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,5 and 8-33 is/are pending in the application.
- 4a) Of the above claim(s) 8-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4,5 and 26-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 24, 2008 has been entered.

Response to Amendment

Applicant's amendment to the claims filed June 24, 2008 has been entered. Claims 2, 4, 5, and 26-30 are currently amended. Claims 31-33 are new. Claims 1, 3, 6 and 7 have been canceled. Claims 8-25 remain withdrawn from further consideration. Claims 2, 4, 5 and 26-33 are currently under examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2, 4, 5 and 26-33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claim 31, the claim recites the melt flow index of the second polymer is determined by ASTM D1238. The examiner submits that this limitation is not

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supported by the original disclosure. Applicant points to the background section of the invention which incorporates by reference the Sosa et al. patent (a patent directed to a reaction and devolatilization process for preparing monovinyl aromatic polymers, such as polystyrene) into the disclosure as providing support for this limitation (paragraph [0003] in the instant application published as US 2005/0161858). However, the examiner submits that there is no indication in the instant disclosure, either implicitly or explicitly, that the melt flow index measurement set forth in Sosa et al. (Table III, footnote c) is the standard by which the melt flow index is to be measured in the instant application for the second polymer. Further, the examiner notes that the test method disclosed by Sosa et al. requires Condition G of ASTM D1238 and does not disclose or suggest any of the other suitable test Conditions set forth in the ASTM D1238 standard currently within the scope of the claim. Additionally, claim 27 recites the instability kappa is as low as 0.045. There does not appear to be support for such an instability kappa limitation in the original disclosure. As shown in Figure 2B and recited in Table 1, the lowest disclosed instability kappa value is 0.142. Claims 2, 4, 5, 26, 28-30, 32 and 33 are rejected as dependent claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 4, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 2, the claim does not make it clear under what test method the recited melt flow index values of the HIPS are determined. The examiner notes that there are a wide variety of test methods that yield a wide variety of melt flow index results. Accordingly, it is unclear to the examiner which HIPS resins are reasonably understood to meet the limitation in the claim. As to claim 4, the claim recites "the relatively high MFI

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polystyrene homopolymer". The examiner submits that in view of the amendment to the claims there is insufficient antecedent for this limitation in the claims. It is unclear to the examiner whether the claim intends to further limit the second polymer to a polystyrene homopolymer or whether the intended limitation is the second polymer recited in claim 31. For the purposes of examination, the claim is understood to be directed to the second polymer blended with HIPS as set forth in claim 31. As to claim 28, the examiner submits that the Izod measurement is lacking required units of measure. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2, 4, and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al. (US 4,188,432).

Regarding claim 31, Holden et al. teach a method of producing shaped articles by extrusion or injection molding processes comprising providing a composition that ranges from

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60-93 parts by weight of component A (col. 6, lines 7-12) wherein component A is high impact polystyrene (i.e. HIPS) or a mixture of high impact polystyrene with less than about 55% thermoplastic styrene homopolymer (i.e. GPS) (col. 5, lines 36-40; col. 6, lines 46-50). The GPS resin (i.e. the second polymer) has a melt flow index, as determined by ASTM D-1238 condition G, ranging from 5-25 g/10 min (col. 6, line 60 - col. 7, line 10; col. 10, line 44; Table 1). The HIPS and the GPS/second polymer are melt blended with other components (e.g. Component B and Component C) (col. 6, lines 12-19) and processed to form a polystyrene article. (col. 9, lines 58-64; col. 13, lines 23-28; col. 14, lines 26-30).

While Holden et al. teach the GPS/second polymer has a melt flow index range that overlaps with the claimed melt flow index range and further teaches a weight percentage range of HIPS that overlaps with the claimed weight percentage of HIPS, Holden et al. do not explicitly teach or exemplify an embodiment wherein both conditions are met at the same time. However, Holden et al. do teach that the articles made from the compositions within the specified ranges produce satisfactory physical properties (col. 5, lines 46-55) and further suggest that the specific melt flow properties (i.e. melt flow index) of the resin can be selected by the ordinarily skilled artisan in view of the intended application and processing method to be employed (col. 8, line 59-col. 9, line 2).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention, in view of the individual teachings of Holden et al., to have employed a GPS resin within the melt flow index range of suitability set forth by Holden et al. (e.g. values up to 20 or 25 g/10 min) while utilizing greater than 50 weight percent HIPS, as also individually set forth by Holden et al., since Holden et al. suggest compositions within the specified ranges produce satisfactory physical properties (col. 5, lines 46-55) and since Holden et al. further suggest that the specific melt flow properties of the resins to be employed can be

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selected by the ordinarily skilled artisan in view of the intended application and processing method to be employed (col. 8, line 59-col. 9, line 2). As such, the examiner submits that Holden et al. establish the melt flow index of the resins to be employed as a result effective variable that would have been readily optimized.

As to claim 2, Holden et al. teach the HIPS has a melt flow index ranging from 1.5 – 10 g/10 min (col. 7, lines 5-10; col. 10, line 44; Table 1).

As to claims 4 and 27, the examiner recognizes that Holden et al. do not expressly recite that the product produced has improved melt stability relative to a product made from HIPS without the second polymer as set forth in the claims. However, Holden et al. render claim 31 obvious as set forth above. As such, Holden et al. render the claimed effects and physical properties realized by the practice of the method of claim 31 obvious. Said differently, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. melt instability) would be implicitly present in the article produced by Holden et al.

As to claim 26, the examiner recognizes that Holden et al. do not expressly recite the claimed melt strength of the article. However, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. melt strength) would be implicitly present in the article produced by Holden et al.

As to claim 28, Holden et al. disclose Izod impact values within the claimed range (Table 3). Further, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed

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effects and physical properties (e.g. izod impact) would be implicitly present in the article produced by Holden et al.

As to claim 29, Holden et al. disclose an article having flexural strength within the claimed range (Table 3). Further, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. flexural strength) would be implicitly present in the article produced by Holden et al.

As to claim 30, Holden et al. do not expressly recite the produced article has a molecular weight as claimed. However, Holden et al. suggest utilizing the same claimed materials while practicing the same claimed method in the same claimed manner. Accordingly, it follows that the same claimed effects and physical properties (e.g. final molecular weight) would be implicitly present in the article produced by Holden et al. Additionally, Holden et al. suggest the inverse relationship between melt flow index and molecular weight and suggest optimizing the melt flow index of the polymer, as required, to achieve the desired final article (col. 8, line 59-col. 9, line 2). As such, the examiner submits one having ordinary skill would have readily optimized the molecular weight of the article by optimizing the melt flow index of the polymers to be processed, as suggested by Holden et al.

As to claim 32, the “consists essentially of” language in the claims is noted. The transitional phrase “consists essentially of” limits the scope of the claim to the specified materials or steps “and those that do not materially affect the basic and novel characteristics” of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). For search and examination purposed, absent a clear indication in the specification of what the basic and novel characteristics actually are, “consists essentially of” will be construed as equivalent to “comprising.” When an applicant contends that additional steps or materials in the

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prior art are excluded by the recitation "consists essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA 1964). See also *Ex parte Hoffman*, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Inter. 1989). Because no evidence has been set forth on the record to show that the use of Component B and Component C as set forth by Holden et al. would materially affect the basic and novel characteristics of the instantly claimed invention, their use is considered to fall within the scope of the instant claim.

As to claim 33, Holden et al. teach the GPS/second polymer can be employed at levels ranging from 0 to about 55 weight percent (col. 6, lines 7-12 and 46-50).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holden et al. (US 4,188,432), as applied to claims 2, 4, and 26-33 above, and further in view of Agarwal (US 5,541,285) and Kaulbach et al. (US 6,713,141).

As to claim 5, Holden et al. teach and suggest the method of claim 31 as set forth above. Holden et al. do not expressly teach the claimed extrusion shear rate. However, Kaulbach et al. disclose that it is known in the extrusion art that the extrusion speed/shear rate and degradation of the polymer are directly proportional properties. As the extrusion speed/shear rate increases, the degradation of the polymer increases (col. 1, lines 50-67). Additionally, Agarwal generally discloses that extruder speeds corresponding to shear rates up to about 10,000/s are known (col. 3, lines 45-47).

Therefore it would have been *prima facie* obvious to one having ordinary skill in the art at the time of the claimed invention to have modified the method of Holden et al. and to have extruded the material at a shear rate within the claimed range of about 1,000 to about 15,000/s

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since Agarwal teach shear rates within the claimed range, up to about 10,000/s, are known and Kaulbach et al. suggest optimizing the speed/shear rate to control degradation. Implicitly, in view of the combination, one having ordinary skill would have optimized the speed/shear rate of the extruder in Holden et al. in order to maximize productivity while producing a product with an acceptable degree of polymer degradation.

Response to Arguments

Applicant's arguments filed June 24, 2008 directed to the Cernohous and Naito references have been fully considered, but are moot in view of the amendment to the claims. Applicant's arguments directed to the Holden reference have been fully considered, but they are not persuasive. Applicant argues that Holden does not teach or suggest melt blending the HIPS with a second polymer exhibiting a melt flow index of about 20 g/10 min to about 40 g/10 min wherein the HIPS comprises greater than 50 weight % HIPS. This argument is not persuasive. As described in more detail in the rejection of claim 31 above, the examiner submits Holden et al. render the claim obvious.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY WOLLSCHLAGER whose telephone number is (571)272-8937. The examiner can normally be reached on Monday - Thursday 6:45 - 4:15, alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Wollschlager/
Examiner, Art Unit 1791

August 12, 2008